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CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society
Of America

Vol. IX JUNE, 1938 No. 12

The belle of Muden Valley, Natal—the home of Euphorbias and Aloes. See page 187

CACTUS AND SUCCULENT JOURNAL

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FIELD STUDY TRIP

Saturday, June 25, and Sunday, June 26

Those leaving Saturday will meet at Bendel's Corner, 11 miles east of Indio at Avenue 66 on Highway 99, in the afternoon or evening for the night camp. Those leaving Sunday morning should arrive by 10 A. M. as the trip into Martinez Canyon to study the plants in place will leave at 10:15 A. M. and have a picnic lunch in the canyon.

Mr. Edgar Baxter will conduct the field study in the Canyon.

Mark your calendar. No other notices will be mailed.

I was somewhat sceptical about inserting my advertisement in the CACTUS JOURNAL, assuming that the number of cactophiles interested in mineral specimens would be far and few between, however, since it was Lithops and Mesembryanthemums I had to exchange for them, the one and only medium seemed to be the JOURNAL. Imagine my surprise and satisfaction when the response and results were far greater than I had dreamed. Today I am firm in my belief that through the pages of the JOURNAL one can sell or exchange Cactus and Succulents for almost anything desired from a wall-eyed guppy to a blue Laeliocattleya.

BOB FRICK.

DEAR MY SOCIETY:

I am young and uneducated about English. I collected many cacti and succulent with interesting. Before some other day I hard your society and good Journal from Mr. Iwasaki Yokohama. Then I want take this Journal. But I cannot write a letter well and I don't know this price. Please give me your kindly report about your Journal and Society.

I pray your Society's happiness and development.

From little town.

1938, March 3.

MUTUYA WAKAMATU, Hokkaido, Japan.

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30 DAYS FOR BINDING JOURNALS

(Absolutely no volumes can be bound after July 15th)

This issue of the JOURNAL completes Volume IX. Assemble your 12 issues and send them by Express or Parcels-Post (not first class) to Cactus Society. Back volumes of the JOURNAL may be bound at this time. Please send $1.50 for each volume and 25c for each missing copy. Be sure to add the same amount that it costs to send your JOURNALS (postage or express) for the return of your bound copies. Retain the three sections of the Glossary. California orders must add 5c Sales Tax.

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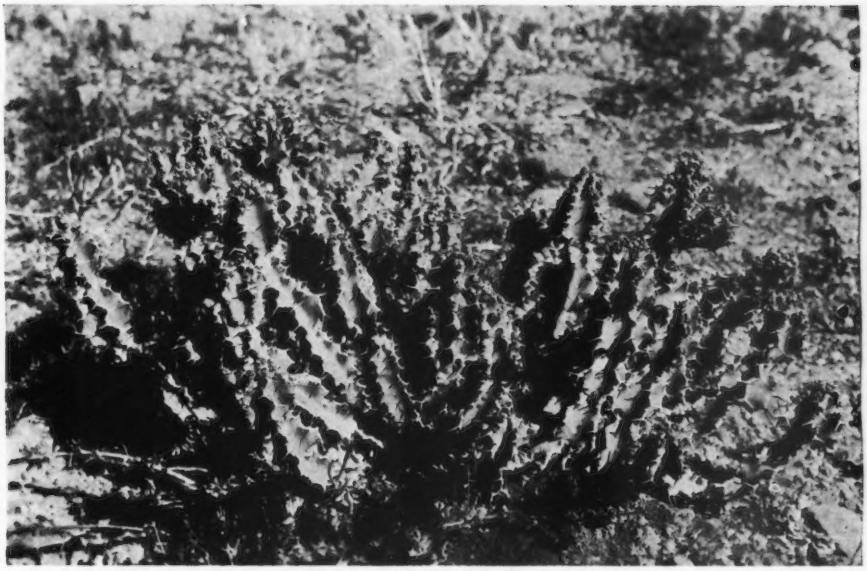
136 West Union Street, Pasadena, California



Euphorbia species allied to *E. pseudocactus,* Muden Valley, about 12 miles from Greytown, Natal.

Botanical Exploration in South Africa

Part VII

By DR. R. A. DYER

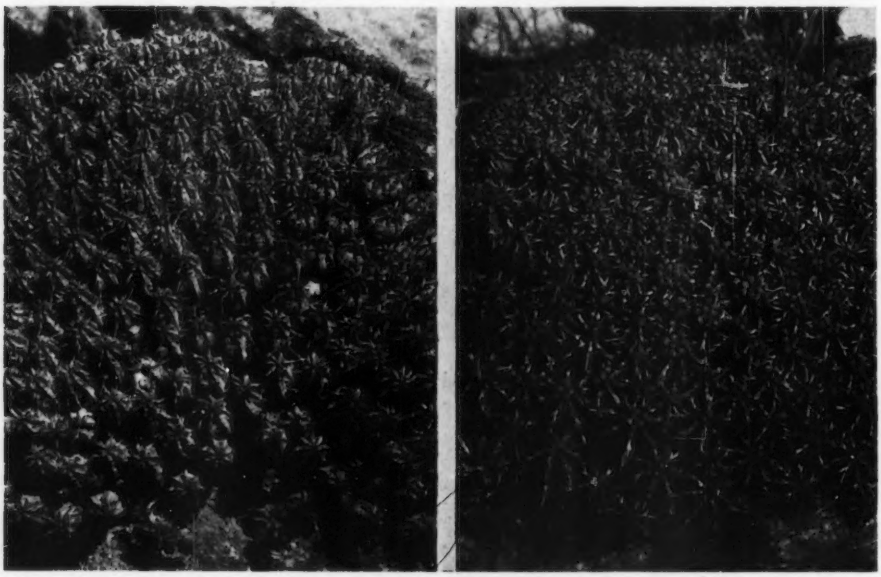
I have shirked to this, the last installment on the Swaziland—Natal trip, the question of the identity of a small shrubby species of *Euphorbia,* found plentifully in the Muden Valley, Natal. It was first brought to my notice as long ago as 1927, when a plant was forwarded to me in Grahamstown by one of my colleagues. Had not Berger in his *Sukkulente Euphorbien* described a similar plant under the name *E. pseudocactus,* I should have had no hesitation in describing the Muden shrub as a "new species." Berger's plant was in cultivation without a record of the country of origin. As it is, considerable confusion now exists as to the true identity of *E. pseudocactus* and it might be argued with good reason that the name should be rejected. I have examined plants at Muden which compare very closely with plants in cultivation in America and at Kew, England, under the name *E. pseudocactus.* (Your Mr. Frick kindly sent me a rooted cutting which has helped materially in this investigation). On the other hand, the plant figured as *E. pseudocactus* by Jacobsen in *Succulent Plants* (Vera Higgins translation, Fig. 73) is certainly not the same species. Jacobsen's Fig. 67, which appears to match the *E. pseudocactus* cultivated in America and at Kew is named *E. hermentiana.* To what wild plant species is the name *E. pseudocactus* correctly applied? Can anyone say? I am left in doubt and would welcome helpful comments by readers.

As with most of the species in the *virosa* group of *Euphorbia,* the Muden Valley plants show polymorphism, under normal conditions. The segmentation is very variable, which feature is undoubtedly due in part to varying climatic conditions from one season to another. What is not so readily explained is the fact that the light green or yellowish green feathery marking on the sides of the angles is present in the majority of specimens yet quite absent in others. If one had been shown a single plant from this locality without the light green marking it is hardly likely that it would have been associated with *E. pseudocactus.* N. E. Brown did not have specimens from Muden Valley for examination and did not even make the suggestion that *E. pseudocactus* might be a species indigenous in South Africa.

Then there was the problem of the relation-

Euphorbia species including *E. triangularis* growing with *Aloe spectabilis* and *A. mudenensis*, Muden Valley.

ship between *Euphorbia grandidens* and *E. Evansii* Pax. To begin with, N. E. Brown misinterpreted *E. Evansii* in the *Flora Capensis* Vol. V, pt. 2. Brown had in front of him a specimen very much like the form of *E. triangularis* which I mentioned in my last article. Pax's species certainly has much more slender branches and although no type specimen was presented, the locality from which the type was collected, near Barberton in the Transvaal, has



Euphorbia pulvinata Marl. Male plant on left, female plant on right. Growing on sandstone koppie or ridge near Vryheid, Natal.

been revisited and the species definitely identified. The habit of growth of *E. grandidens* and *E. Evansii* is very similar, the ultimate branchlets of the former are usually 2 to 3 angled and have comparatively prominent tubercular-like cushions from the apex of which the spine-pairs arise. In *E. Evansii* the ultimate branchlets are 3 to 4 angled and the spine-pairs are not on markedly raised tubercular-like cushions. Unfortunately I have not at my disposal at the moment flowers and fruits of *E. grandidens* for detailed comparison with those of *E. Evansii.* It is the latter species which occurs frequently in parts of the Muden Valley.

Attention may not have been drawn previously to the fact that all species, at least all South African species, of the "paired spine" group, such as *E. grandidens, E. triangularis,* etc., have male and female flowers on the same plant (although not always in the same cyathium). In the "pedunculate spine" group, in which some peduncles become spinescent, and to which group *E. pulvinata* belongs, the male and female flowers are more often than not on separate plants. Photographs of *E. pulvinata,* illustrating the separate sexes, were taken on the return journey near Vryheid, but only the female plant with fruits came out clearly.

Meanwhile Mr. Reynolds was wrestling with another problem created by Berger. Berger, in his revision of the genus *Aloe* in *Das Pflanzenreich,* records *A. ferox* Mill. from Natal and not from the Cape; when, in fact, the Cape is almost certainly the locality of origin, since Natal was at the time of the discovery of *A. ferox* Mill. unknown territory to the botanist.

Berger's conception of *E. ferox* Mill. having been proved incorrect, it became necessary to rename the plant socalled by him. Mr. Reynolds has set forth the position clearly in South Africa Journ. Bot. July, 1937, and the regal species of *Aloe* in the Muden Valley and elsewhere in Natal is now known as *A. spectabilis.* It is shown to advantage in one of the photographs reproduced here. Mr. Reynolds says the picture illustrates *Aloe spectabilis* in association with various species of *Euphorbia,* whereas I say it represents an associes of *Euphorbia triangularis* and *E. sp.* nr. *E. pseudocactus,* with scattered individuals of a species of *Aloe.* It's just a little difference in the interpretation of the same facts!

Before departing from this interesting locality I "snapped" the belle of Muden Valley amongst *Euphorbia* growth. It may be surmised that the adhesive property of the *Euphorbia* latex has been requisitioned to help balance the pot. As a matter of fact these native girls are accustomed to carry water in such pots for perhaps several miles without ever having to raise a hand to maintain perfect balance. In all their primitive glory they, nevertheless, usually exact a monetary reward before posing before the camera; without this there is often a suggestion that the camera is bewitched.

Turning from ancient to modern, we say au revoir to Miss Verdoorn and Mr. Reynolds,

Aloe vryheidensis near Louwsberg east of Vryheid. Miss Verdoorn and Mr. Reynolds au revoir.

who stand with a background of *Aloe vryheidensis* on the hillside. It will be remembered that *A. vryheidensis* was discussed in article No. IV of this series. It was 2 p. m., on the day we were due to return to headquarters, before investigations on this species had been completed. We were then still 335 miles from home, but again our driver "stepped on the gas," and, even including an hours break for dinner, we arrived back as the city clock chimed the hour of midnight.

EDITOR'S NOTE: Journal readers have enjoyed Dr. Dyer's series of articles and regret that they do not go on forever. However, we are grateful for the valuable scientific facts, the wonderful photographs and the entertaining manner of presentation. Without too much envy of this trio's botanical trip we must content ourselves with the privilege of recording such valuable data. Mr. Reynolds has promised us some Aloe information "associated with Euphorbias!" And we look forward to more of Dr. Dyer's explorations.

PLANT NAMES ARE IMPORTANT

I have every issue from the beginning and couldn't live without it. I believe the last year's issues have been the best ever. I did miss the National Show last year, but am glad you are having another this spring. Would like to exhibit but living so far they would probably suffer in transit. I have two hundred named varieties of Mammillarias alone—most of them specimens. Of course I realize some are misnamed, but believe most are right. That reminds me of something I often think of. Wouldn't it be a wonderful service by the Society of it could afford to put an expert in the field and visit all collectors inviting him, and check up on the names of the plants? The Society perhaps to pay his expenses and the parties serviced—say five or ten dollars each or perhaps the amount a voluntary offering according to how big the job. But of course his knowledge would have to be stupendous or his services would be wasted. When we have two identical plants with the same name or plants without names it worries us.

Another wild idea—It seems to me it would be rendering the Society a mighty service to put out a pamphlet or publish a few each month of all species of cacti known similar to the conspectus in the back of Dr. Houghton's Cactus Book, including the new species to date. I still refer to his book, but find many missing from it which is always a disappointment. Also the varieties should be arranged alphabetically.

MRS. HAZEL C. NEVIN, Calif.

I've quite a collection of cactus and a fairly good showing in succulents. With them, of course, arise questions and problems. One needs someone to answer these questions—someone who has had similar problems. I've been obtaining fine information and help from copies of your paper kept practically under lock and key at our local library. But I'd like to have my own, right at home, for quick reference.

MRS. J. N. ANDREWS, Oakland, Calif.

EDITOR'S NOTE: On pg. 84, December, 1937, JOURNAL it should have been stated that *Acacia xanthophloea* is called the "fever tree" because it is restricted to water courses where fever is particularly bad at certain seasons. The Editor's apologies to Dr. Dyer.

BENCHING

On page 47 of the September JOURNAL is an interesting picture of Mr. Frick's greenhouse with his comments on the advantages of benches with solid side walls and bottoms of earth into which the pots are plunged. No one will deny that the plunging of pots helps to conserve even soil moisture and thus induce a better growth. However, the prevalence of root knot nematode may offset all the advantages to be gained by this system. If one infested pot is plunged into the bench, these pests will soon infest the whole lot of pots. Furthermore except by the use of drastic and expensive measures, that bench will always be infested.

We believe that benches should have bottom boards not over eight inches in width with cracks at least a half inch wide between boards. In fact we use some skeleton type benches for flats that are topped with one by three inch slats, that we think are ideal. On the ordinary type of bench with the boards set closely together, the soil which is washed out of the pots accumulates until a thick layer of muck is formed. Nematodes will burrow through this muck and enter clean pots through the drainage holes. Nematodes cannot travel on a smooth surface as they must burrow and if the bench is kept clean they will dry out and die before they reach another pot.

We believe in keeping the sides of the benches open and the ground beneath clean. If any rubbish is allowed to accumulate under the benches it will form a hiding place for snails, slugs, sow bugs and other vermin. Several oilings of the ground under the benches and in the paths with old crank case oil, will form a hard surface which will keep weeds from growing and may be swept with a broom. It also discourages the colonizing of ants. Caution: This oiling of the ground may cause the house keeper to say unkind things when her rugs get soiled!

HOWARD E. GATES

A potted Gasteria flowered at 30 degrees below zero in Vermont. The plant was kept in the living room with excessive dryness during the day and nearly freezing point during the night. The inflorescence was colorful from February 10th to March 20th. This shows that an African summer cannot be changed by a Vermont winter.

KAKTUS ABC, by Curt Backeberg and F. M. Knuth, 432 pages fully illustrated. Many new species and genera. Written in Danish, but is a necessity for every cactus library. The lists show 500 more species than were recognized by Britton and Rose. Cloth bound $5.00.

LES CACTEÉS & PLANTES GRASSES (French) by P. Fournier. $3.50.

Type Plant of *Cereus grandicustatus*, Werd.

Single Flower of *Cereus grandicustatus*, Werd.

What Is New in Huntington Botanical Gardens

By WILLIAM HERTRICH, *Curator Huntington Botanical Gardens*

Cereus grandicustatus Werdermann

(Notizblatt des Bot. Gart. u. Mus. Berlin-Dahlem—Bd. XII Nr. 114)

One of the outstanding species of the genus *Cereus* (*Piptanthocereus*) in the Huntington Botanical Garden, without doubt, is *Cereus grandicustatus* Werd. In general appearance it is very similar to *Cereus glaucus* Salm-Dyck, as it is the same robust type of growth, forming a very short trunk (if any at all) and extremely heavy limbs—perhaps more densely branched, but not nearly as compact and short jointed as is *Cereus caesius* Salm-Dyck. The species compares favorably with either *C. glaucus* or *C. caesius* in frost resistance, but neither of these are as hardy as some other species of this genus for they are affected by five or six degrees Fahrenheit of frost if it persists longer than an hour at a time. Its spine arrangement differs from both of the above mentioned species. But the greatest difference is in the flower which is perhaps the most outstanding of all true *Piptanthocereus* flowers as far as size and shape is concerned.

As this specimen has never set fruit, comparison in that respect is not possible. Its native habitat cannot be determined and the plant may possibly be a garden hybrid of unknown origin.

Following is the description of the type plant (Location number 9-7) in the Huntington Botanical Garden:

Habit of growth: Sturdy, upright, densely branched, as the accompanying photograph indicates. This specimen is about 18 years old and nearly 4 meters in height. Indications are that it will eventually attain a height of from six to eight meters, similar to *C. glaucus* Salm-Dyck. It branches from or near the base. The oldest branches attain a thick-

ness of about 25 cm., decreasing through various sizes down to the new growth which is from 10-15 cm. thick.

Terminal: In new growth has a combination of horn or brownish colored spines, interwoven with loosely arranged, yellowish brown areole felt, and longer hairs nearly the same color as the spines. Terminal in mature growth is flat or slightly depressed.

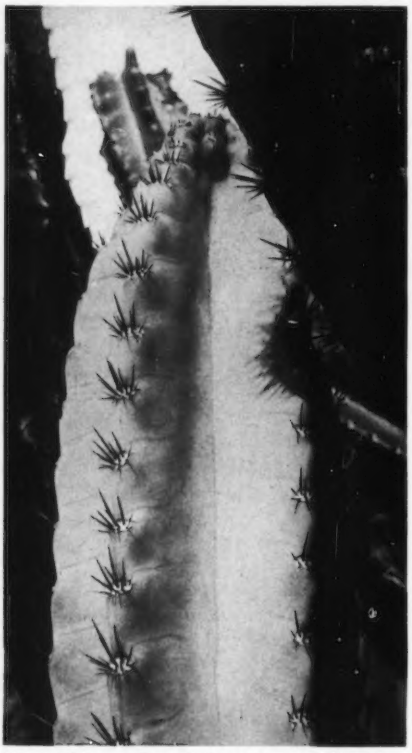
Color: New growth is of a very striking bluish tone, fading into a greenish hue as growth matures and finally becoming a grayish green which varies from light to darker shades, according to the age of the branches. Trunk finally becomes gray and scaly.

Ribs: Generally 6, occasionally 5 in new growth; height ranges from 6 cm. in young growth to 9 cm. in mature, and from 1 to 1½ cm. thick, occasionally 2 cm. Ridge of rib rounded and considerably notched at areoles in new growth; later bulged outward between areoles. A very pronounced groove line between the ribs is evident in the young growth and remains so in older growth. Secondary groove lines are also prominent along the side of the ribs from the areoles downward. These are very strong in young growth and fade into a shallow impression in the more mature limbs. They extend about three-quarters down, very seldom does one reach the groove line between the ribs. Ridge surrounding areoles is slightly swollen causing areoles to be somewhat depressed.

Areoles: Oblique-elliptical in shape, up to 12 mm. in width. Distance between areoles in young growth from 2½ to 4 cm., extending occasionally to 5 cm. in mature growth. Flat in young growth covered with very loose, grayish-brown felt-like wool, mixed with some long, web-like, lighter colored silky hairs, which soon disappear. As growth matures felt becomes matted, slightly cushion-like, first light, later dark gray.

Spines: Brownish in new growth, dark at base, fading lighter towards tips, occasionally some of the central spines are horn colored to light yellow. From 11-14 in young growth and from 13 to 19 in mature limbs. The outside row which can be considered the true radial spines usually contain 7-9, from 3-12 mm. long, the longest along the sides of the areole and the shortest near the base, occasionally a very short one is in the upper portion. Most radial spines spread horizontally, a few less so. Central and semi-central spines are about the same number as the radials, but are considerably longer. The most central ones the longest, ranging from 1½ to 4 cm., occasionally one is even longer. All spines are needle-like and stout in proportion to their length. Color ranges from pale horn in young growth to dark or almost blackish gray in older limbs. In older areoles the spines occupy the lower two-thirds portion.

Flower: Nocturnal, approximate length 26 cm., when fully open about 23 cm. across the top. Flowers of this species open wide and flat; outside perianth segments are recurved and some of the inside white ones as well, contrary to its related species *Cereus glaucus* Salm-Dyck and *Cereus caesius* Salm-Dyck.



Typical Young Growth in *Cereus grandicustatus*

Ovary: 4½ cm. long by 2 to 3 cm. in diameter. Very heavily ribbed on the outside; color, light green along top of ribs, darker in the grooves. Cavity 2 cm. long by ¾ cm. wide.

Bracts: Slightly elevated, parchment color, about 2 mm. wide at base by 3 mm. in length, sharply pointed, adhering tightly to ribs. Bracts along tube less in number, otherwise the same; larger ones beneath the outside

Following is the Index for Volume IX. Remove the Index and place it after page 200. The Glossary will be resumed in the next issue.

perianth segments, reddish-brown in the upper portion.

Tube: Not including ovary, about 12 cm. long; diameter at base 3 cm.; on top 4½ cm. Color of tube is same as ovary, fading into yellowish-green near the top. Heavily ribbed near ovary, flattening out toward the top.

Outside perianth segments: Outside row, reddish-brown along the mid-rib and entire terminal, balance fades into green; inner row white, green mid-rib. Sharply pointed from 7 to 9 cm. long by 2 cm. in width. All recurve towards tube.

Inside perianth segments: Entirely white, acute up to 11 cm. long and about 2½ cm. wide; terminals finely serrated, some with hairy fringes.

Filaments: Attached along wall of the tube beginning 4 cm. above ovary; base pale green, top greenish white.

Anthers: Blunt, 3½ mm. long by 2 mm. wide.

Style: Pale green, approximately 19 cm. long, extending above anthers.

Lobes: 15 in number, about 2 cm. long, green.

"FROM OKLAHOMA"

With the coming of warmer days, we of the Oklahoma Cactus and Succulent Society are enjoying many flowers in our Desert Gardens—and a few pests, too. We mean insects, really, for we always enjoy showing our plants.

Speaking of pests reminds me: I asked Mr. Jay E. Gilkey what spray he used for pests on cacti. He replied, "Vodka." I asked him why waste it that way to which he again replied, "Oh! I mean Volck—Wonder what made me say that?" I wonder, too.

Mrs. Winnie E. Jones, who gave the lesson on Wilcoxias early in the year acquired a collection of them at the time. She enjoyed blooms shortly afterward. These lessons inspire our members to get new plants to use in illustrations, which is a very good thing in many ways we think.

Quoting Mrs. Harry T. Johnson; "Meters, decimeters, centimeters, millimeters—Oh! Heck—What size is it anyhow? Aren't we an American organization? Why can't we have standard American feet and inches in plant measurements?"

I know two good pals; Following "Trails Westward," did we have fun? Mrs. Tom Kelk and Mrs. R. A. Chubb are the girls I am referring to. Of course they are very reticent about meeting real cowboys in the west, but when hunting cacti in these wide open spaces they are there. Don't tell our husbands, but we voted unanimously to go again next year.

We of Oklahoma feel quite honored to have one of our members who is also one of our Past Presidents, elected to membership in the National Board of Directors. Referring to Mrs. Harry T. Johnson again.

And are Mr. and Mrs. Tom Kelk strutting? In 1936 the R. A. Chubbs had a supposedly Echinocereus reinchenbachii produce yellow flowers. In 1937 a repeat performance took place in the garden of Mrs. J. C. Barnard, and is this year, 1938, among the Kelks "rickys," to be different yet, one produced two satiny white flowers. Of course its unheard of. All the yellow flowering plants died after flowering. We do hope the Kelk plant thrives and produces many progeny, one way or another, so maybe some more of us can acquire the white blooming species. Further search in the fields has so far failed to produce any more of these unusual plants. We are working on an article regarding these Oklahoma freaks and have some pictures, so hope to let you know more later.

The W. E. Smeltzers have returned from San Antonio where they spent the winter, reporting many interesting things from down that way. We are very glad to have them with us again. Mrs. Smeltzer is much interested in grafting plants and has many nice specimens of her work.

At the Flower Show, May 14 and 15, our cacti as usual attracted much attention. Several plants were in flower at the time, proving to the public that cacti really bloom. At the same time the Nyctocereus serpentinus at the Will Rogers Park Conservatory put on a display of fourteen blossoms at one showing. The "Shadow Box," prepared by Mrs. Jas. H. Hyde, for the Society won a blue ribbon as usual.

THE CANDID REPORTER.

LOS ANGELES PLAYGROUND CACTUS AND OTHER SUCCULENT SHOW

This Show, sponsored by the Los Angeles Playground Department, will be held at Manchester Playground, 8800 South Hoover, Los Angeles, on June 25th, 1 p. m. to 10 p. m. and June 26th, 10 a. m. to 10 p. m. Judges will be, Chairman of Cactus Division, Harry Johnson, with H. C. Whitmore and Wm. Hertrich as the other two; in the Other Succulents Division J. R. Brown is Chairman, with Boyd L. Sloane and Miss Bonnie C. Templeton of the Los Angeles Museum of Natural History working with him. Ellen Rooksby has the Decorative Arrangements to Judge. Clerks will be Mary Norwood Lawrence and Edna Hoffman.

The schedule is built for amateurs as they are the principal exhibitors and they arrange and do the work for the Show. There is always an interesting open division in which anyone may enter. Also there is a special division handling a number of entries, such as bowls, miniature gardens, etc.

This year there is a novice division for absolute beginners. We trust it will draw some attention. It has been very favorably commented upon.

Commercial men have engaged space, and some of them, like Hummel's Exotic Gardens make very lovely courtesy exhibits. We have had some very fine exhibits from commercial gardens.

There is a special entry for cactus or garden clubs. This is a limited space entry, 2½x8 ft., so that each club will have the same thing to shoot for.

MURRAY SKINNER.

LOCAL CONTACTS DESIRED

Mrs. Joseph C. Brown, Port Republic, N. J.

Mrs. C. Nickolaus, 813 Brown St., Wilmington, Del.

Mrs. M. H. Woodman, 64 Bay St., Springfield, Mass.

Cuthbert S. Francis, 363 Third Ave., New York, N. Y.

10th ANNUAL CACTUS SHOW

This, the last number in Vol. IX, was completed before the Show so that the Index could accompany this 12th issue. A report of the Show will appear in the July issue.

I like reading the CACTUS AND SUCCULENT JOURNAL very much. It is a very long month between books. Enjoy the "Botanical Exploration in South Africa," following their trip on my National Geographic map of Africa. Have been a reader of the JOURNAL for just a year, and prefer reading that than any of the story magazines found at newstands. After reading articles of where some plants are found, try to find out more of that section by going back to my NATIONAL GEOGRAPHIC.

Received a *Phyllocactus* for Christmas. The plant has 3 good sized leaves and was told it was to bloom this year. I keep my plants in a south window during the winter, all small plants.

Like to read of what luck, good or bad, that other readers have had with their cacti. The pictures of plants with or without flowers are helpful, as well as what is written about them. Watch for pictures, as I have 2 cacti which I bought at a 10c store about 10 years ago. They were potted in a small fancy container similar to a flower pot, but no drainage hole. The directions were to put the pot in a pan of water once a month 'till the top of soil showed moisture. Not knowing more, did as directed, but the cacti never grew, though they did stay green. After reading several JOURNALS, took them from the pots by breaking pots. The soil was as hard as a brick. Finally after washing all old soil away, found neither of them had roots. Put them in regular flower pots, and this past summer both grew, one getting fatter around, the other by top growth and a small plant from the side. No flowers on either of them as yet. Am waiting to see what they will do this coming summer. Maybe some day a picture and description in the JOURNAL will tell me what they are.

Hoping for continued success for the JOURNAL.

MRS. C. NICKOLAUS, N. J.

I had about decided that the JOURNAL was a bit too technical for a mere amateur, however, the January issue is the most interesting number I have had.

Your promise of colored illustrations has caused me to decide I cannot miss them so here is my subscription.

I wish to join Mrs. R. C. A. of Worcester, Mass., in the request for more articles or suggestions to beginners. I am especially anxious to know the kinds of Cacti which will bloom in the house in the winter What kind of treatment to give them to secure bloom?

MRS. A. M. KENYON, Iowa.

Question: I am an instructor in high school biology, and am very fond of cacti. I have about 20 cacti in my class room at the present time. I should like a variety of cacti which could be grown indoors, and would bloom at intervals throughout the year. When one variety has flowered another variety would begin. Could you send me such a list? The room is well lighted with eight large windows and the exposure is south and west. In other words my room is the north west room of the building, and on the top floor.

Thanking you, I remain,

O. T. DARLING, Wis.

Answer: We are in receipt of your letter regarding your class room garden. We are happy to send a list of cacti that will grow satisfactorily in door and will bloom over a period of months. However, it is necessary to have a good soil mixture. Cactus experts advise one-third top soil, one-third sand, one-third leaf mold. The plants should be watered twice a week during the growing period.

The Cactus Journal for May, 1935, pg. 172, gives the following list of plants for indoor culture:

"In my experience, the following species are very satisfactory for indoor planting. There are very likely many other good species for this sort of culture, but at present I would only recommend the following list. Plants inside should be kept fairly dry during the cold weather and they do not need an over abundance of water at any time. *Cereus beneckei, Aporocactus flagelliformis, Chamaecereus silvestrii, Cephalocereus senilis, Coryphantha andreae, Ferocactus melocactiformis, Malacocarpus haselbergii, Notocactus cunninghausii, Malacocarpus mammulosus, Rebutia minuscula, Malacocarpus scopa, Ancistrocactus scheeri, Malacocarpus tabularis, Echinopsis grandiflora, Echinopsis aurea, Echinopsis formosa, Mammillaria albicans. M. compressa, M. bocasana, M. celsiana, M. camptotricha, M. candida, M. candida* var. *rosea, M. donatii, M. decipiens, M. elongata stella aurata, M. elongata echinata, M. hahniana, M. haageana, M. rhodantha ruber, M. rhodantha, M. pfeffferi, M. longicoma, M. microhelia, M. polythele, M. praelii, M. parkinsonii, M. polygona, M. polyedra, M. pringeli, M. plumosa, M. densispina, M. spinosissima, M. solisii, M. trichantha, M. villifera, M. viereckii, M. wilcoxei, M. zephyranthoides* and *M. zeilmanniana.*

Give any of these plants ordinary window lighting or sky-lighting without sun and they will do very well. This group would make a collection that any cactus fancier would be proud to own.

WRIGHT M. PIERCE."

We are adding the following list:

Monvillea cavendishii flowers early spring to late fall, *Mammillaria saetigera* and *M. bocasana* flowers spring through the summer, *Lobivia* sps. for winter flowers.

Question: Kindly send me information on the growing of small cacti; including the types to start a small window garden, room temperature, how often the plants require watering, and all other necessary information. Also include types that can be grouped together in one jar in order to make a table centerpiece.

D. V. K., Chicago.

Answer: There are several very desirable genera which would answer your purpose. My own special favorite is the genus Mammillaria as the individual plants are in most cases small globose shaped and remain so for a long period. Many of them, of course, divide into heads in a period of years, but by that time you will probably be such an ardent fan that you will have enlarged your facilities for taking care of them. Besides this particular group there are Lobivias, Gymnocalyciums, Rebutias, several Echinopsis, etc.

The first item for consideration is the proper soil mixture whether you plan to use pots or window boxes. The window box plan would be best as in such a container each plant would have as nearly as possible the most natural growing conditions. Proper drainage is essential as moisture standing around the roots of the plants is most detrimental because of the tendency toward rotting. The best soil mixture seems to be a third each of leaf mold, top soil and sand. As you probably know the desert soil is not pure sand. The underlying layers consist of an accumulation of long years of decaying leaf mold. It is always wise to put charcoal in the bottom of whatever container you use. Room temperature should never be allowed to get below fifty degrees and it is also wise to avoid too in-

tense concentration of sunlight as many cacti need at least slight shade. During the growing season a light watering twice a week should be sufficient.

In making table centerpieces it is well to bear in mind that whatever plants are used they are not intended to be kept that way for an indefinite period as the plants, if healthy, will outgrow the container. Of course part of the fun is having the plants grow well because that gives you opportunities for transplanting and re-arranging as the spirit moves you and the health of the plants permit. There are several of the other succulent varieties that combine well with the cacti to make your dish-gardens artistic, such as *Aloe variegata, Faucaria tigrina, Echeveria elegans, Stapelia variegata* and many more.

It would be wisest to depend on seedlings as they are already used to growing indoors. Desert collected plants do not take kindly to transplanting and besides there is great need of conserving our desert growth.

MRS. PERCY T. SMITH.

Question: I am interested in three things:

1. What cactus will bloom.
2. The proper kind of soil to use and the best way to water them.
3. If there is any way to encourage their growth.

JACK RUEL, Wash.

Answer: 1. All cacti flower in nature, but some species less freely than others. For cultivation, seedling Mammillarias are recommended as these are usually two years old when purchased and they usually flower beginning the third year. The plants are small and the flower is small, but generally colorful and attractive. Echinopsis and Lobivias have larger, and more showy flowers on small plants and species of Piptanthocereus, Monvillea, and Echinocereus, while larger plants, all bear large and interesting flowers. Selenicereus and Hylocereus both contain species with large night-blooming flowers and as climbing plants are highly prized for greenhouse growth.

2. Soil for cactus must be loose, with very free drainage, but with ample plant food. For most species we recommend a mixture of one-third crumbly top soil, one-third clean river sand, and one-third well rotted leafmold. If plants are potted about one to two inches of pebbles or broken pots in bottom will assure good drainage. In outdoor planting, beds should be raised six to eight inches above surrounding ground, each bed outlined with fair sized rocks to prevent washing.

Water can be supplied freely as for other plants in hot weather, but should be supplied from below by irrigation or if by sprinkling this should be done in early morning or late afternoon when the sun is not on the plants. Allow plants to dry out before cold weather sets in and water very lightly and only on warm days in winter. . . .

3. Providing that your plants are well rooted, liquid fertilizer or barn yard fertilizer can be applied as soon in spring as weather is warm and once a month thereafter 'til July. No fertilizers should be applied to strictly desert plants such as the barrel cacti (Ferocactus and Echinocactus) fish hook cacti (Mammillarias) etc.

W. TAYLOR MARSHALL.

Our Society is starting in our fourth year, with several new members and no waning of interest in the old ones. We are gradually learning, not what to think about cacti, but how to think of them.

MRS. J. H. HYDE, Oklahoma City.

"CALIFORNIA FLOOD"

EDITOR'S NOTE: This delayed report contains very little damage to cactus growers, now that a complete check-up has been made.

Members of the Cactus and Succulent Society of California will be pleased to know of the number of their friends in all parts of the country. The unity of the Society is shown by the concern of their fellow members in any section hit by disaster. The many sympathetic letters pouring into the Editor's office all request information regarding the damage to collectors.

It is gratifying to report that no serious damage has been reported, thus far, to a single member. A year ago in the "Great Freeze" few of the collectors escaped serious losses. True to the California reputation, we must minimize the damage to save our faces, but when you view the terrifying news reels it is well to remember the vast area of the state and that a few rivers can only render havoc to a relatively small area.

We are grateful to all those who have our interests at heart and as long as this brotherly interest exists then our Society has accomplished its aims.

Ex-President Gates of Anaheim came nearest to the scene of disaster and comments as follows:

"The flood surely walloped this town last week. At daylight Thursday it was under six inches to six feet of water. Only fifteen or twenty residence lots stayed above it. Probably fifty homes within the city were wrecked and eleven hundred were damaged to a lesser degree. Every store in town had three to eighteen inches of water in it. Practically all basements were flooded. Even more severe damage was done in the orchard area south of Placentia and Atwood to the north east. Today I saw whole groups of homes there that had been lifted up and thrown together. My residence floor was covered as well as all the ground I have, but the stock was un-injured. On the next street south the water ran three to four feet deep. A real job cleaning up mud."

Yesterday I received my first two copies of the JOURNAL. They are very fine and give me exactly the type of information of the "Spiny Brutes" that I have been wishing for.

C. GRAHAM DIMOCK, Canada.

BULLETIN FOR CACTUS RESEARCH (BFK)

By CURT BACKEBERG

The recent issue of BFK contains the following:

Chilenia atrispinosa Bckbg. n. sp.

Chilenia cephalophora Backbg. n. sp.

Armatocereus godingianus (Br. & R.) Backbg. nov. comb. (*Lemaireocereus godingianus* Br. & R., 1920).

Borzicactus morleyanus Br. & R. (1920).

The following notice accompanied the Bulletin:

"*The BFK will in future only appear quarterly.* This is necessary so that the art pages may reach the subscribers in perfect condition. There will then be two strong cards to protect them. The next issue will be at the end of June (then end of September and end of December). I am thus following the wishes of many correspondents, and it must also be taken into consideration that the Bulletin goes to Australia, Japan, etc. On so long a journey the thin monthly issue is easily damaged."

The Britton and Rose reprint is splendid and more comprehensive than I realized, and has provided a wealth of information and entertainment.

Notes on Haworthias

By J. R. BROWN

Haworthia cuspidata, Haw., Suppl. (1819) 51; Bak. in Th. Dyer, Fl. Cap. VI (1896) 346; Berger in Pflanzenreich IV. 38 (1908) 107; Poelln. in Cac. Journ. VI (1937) 37; non Poelln. in Repert. Sp. Nov. XLI (1937) 198.

Plant somewhat caespitose, with 30-40 leaves and 5-6 cm. in diam. Leaves obovate-lanceolate, narrower towards the base, retuse-recurved towards the apex and distinctly awned, 25 mm. long and 13 mm. wide, pale green, the apex pellucid and marked with 3 longer and 4-5 shorter anastomosing, opaque lines, back of leaves rounded and keeled in the upper part, the margins and keels slightly ciliate-serrulate. Peduncle simple, including the raceme 30-40 cm. tall; pedicels 2-4 mm. long, bracts slightly longer; perianth 15 mm. long, the segments equalling the tube.

Locality: Type locality unknown. Introduced in 1818 by Bowie to England.

This has been a very confusing plant for a long time, probably due, in large part, to the obvious error made by Berger in showing an illustration of this plant under the name of *Haworthia cymbiformis* Haw. and it is under this erroneous name that it is found here in California where it is very well known in collections of succulent plants.

Baker makes the following notation, "Inter *H. retusam* et *cymbifoliam* medium tenens" and it looks exactly an intermediate between those 2 spp. Berger after first comparing this plant with *H. turgida* Haw. in some characters, places it in the sect. *Limpidae* Berger. However, it is never at any stage abruptly pellucid at the leaf apex and it would seem to properly belong in the sect. *Retusae* Haw.

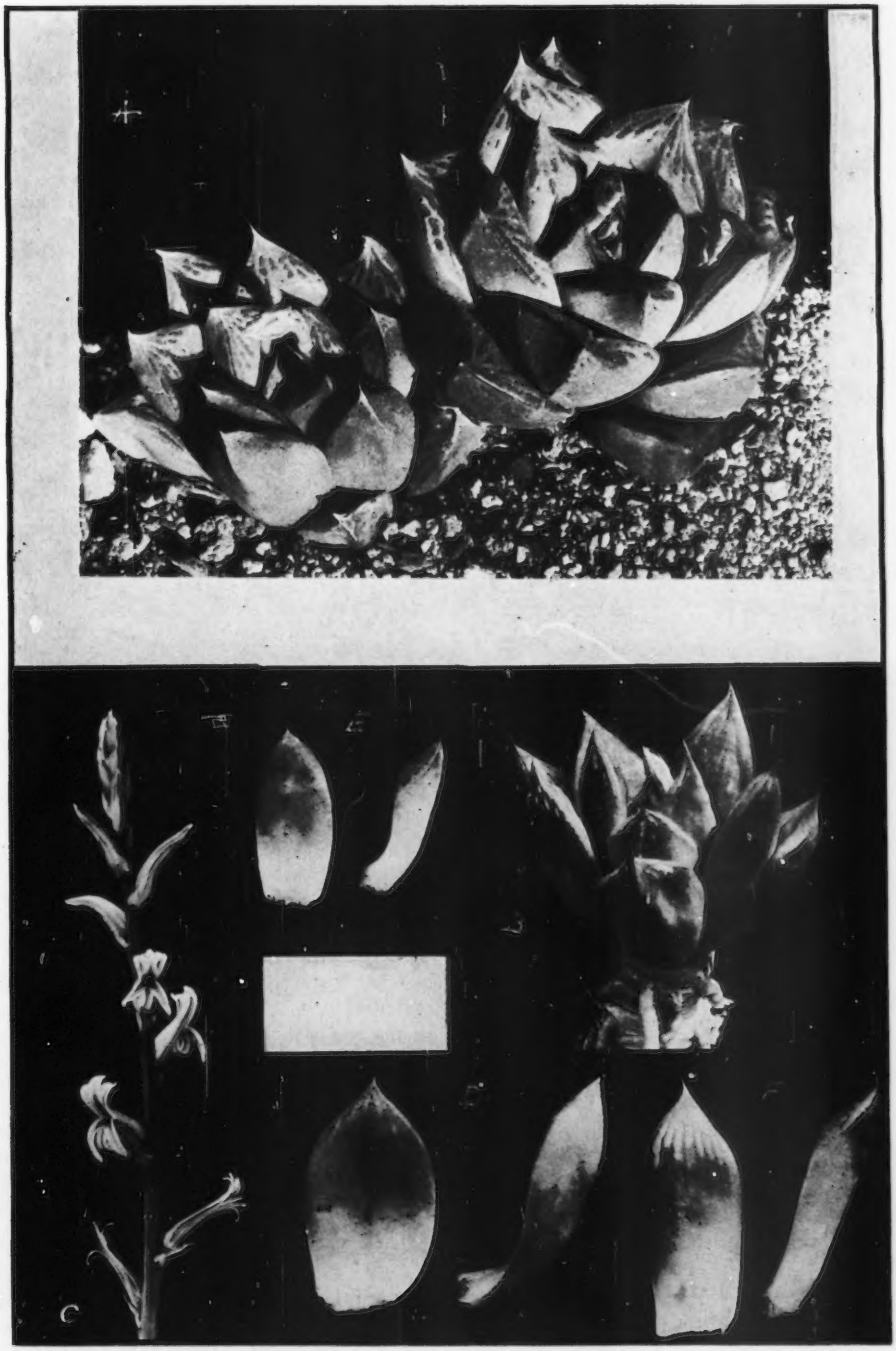
Illustration A shows a plant growing outdoors in Southern California of which the following is a description.

Plant shortly caulescent, 5-7 cm. in diam., with 15-20 leaves, proliferous from the base and soon forming a dense cluster. Leaves smooth, mostly erect or the oldest erect-spreading, 3-4.5 cm. long, to 2 cm. wide above the middle, narrowing to about 12 mm. at the base, about 10 mm. thick in the thickest part, face of leaves somewhat concave from below the retuse tips towards the base, the retuse pellucid tips with 8-11 longitudinal, opaque, green lines, three of which are usually longer, the middle one extending to the extreme tip, and with more or less broken and uniting transverse lines, back of leaves very convex, keeled in the upper part, slightly concave on either side of keels and with a few, small pellucid markings near the tips, the brownish terminal awn is 2-5 mm. long, margins pellucid in the upper part, usually smooth or with occasional obsolete teeth, the lower part of margins sometimes smooth, usually with minute pellucid teeth, the keels sometimes smooth or sometimes with minute pellucid teeth, the entire leaf, except the pellucid areas, is of a uniform pale greyish green, but when grown in much sunlight it somewhat resembles amber in coloring and is very attractive, the pellucid areas showing against the yellower parts, as is often seen in pieces of amber. Peduncle simple, with the fully expanded inflorescence 20-30 cm. tall, (about 40 cm. tall when grown under glass); flowers 15-30; pedicels 2 mm. long, only occasionally are the lowest pedicels 4 mm. in length; the membranaceous stem bracts 7-10 mm. long, flower bracts 6-7 mm. long, all the bracts with a distinct brown keel; perianth 15-16 mm. long, the very recurved segments equalling the tube in length, outer segments with a brownish line, the inner with a green line.

Many plants of this Haworthia have been grown for a period of many years under varying conditions and illustrations A and B show the 2 extremes which have occurred. B shows the central rosette of a very old plant, grown in a pot under glass, in which condition the leaves were 2.5-3 cm. long and 10-16 mm. wide, this plant would seem to more nearly agree with Berger's description. When a single rosette is grown under glass the leaves may be paler, longer, with more pellucid tips and very spreading.

So far, this Haworthia has not been received from South Africa by the writer.

It flowers in Southern California during the months of April and May, and is a plant of easy cultivation.



A: *Haworthia cuspidata,* Haw., growing outdoors.
B: *Haworthia cuspidata,* Haw., a very old greenhouse cultivated plant.
C: Inflorescence of plant A.
D: Face and side view of leaves of plant A.
E: Face and side view of leaves of plant B.
F: Face and side view of leaves of a plant when grown as a single rosette under greenhouse cultivation.
All nat. size.

RAISING CACTI FROM SEED

Summary of a lecture given before the Cactus and Succulent Society of Australia by its Vice-President, S. TIVEY.

The cultivation of the Cactus is a fascinating form of gardening now practised by an increasingly large number of suburban gardeners. There are more than 1000 species of cactus known to collectors, and new varieties are still being discovered in South America and in Mexico and U. S. A. It is inevitable that growers should attempt to grow plants from seed, and although at first there were many failures, due not only to ignorance of planting conditions, but even more to old, or diseased seed imported from overseas, these conditions have been almost overcome.

Some seeds will germinate and the plants show themselves within thirty-six hours of sowing. Other seeds, apparently having missed a season, will produce seedlings many months after sowing; so one should never despair. Many of the Mammillarias, Rebutias, and Cerei grow quickly once they start, and the pretty silky-haired *Mammillaria bocasana,* with its tiny red hooked spines, will flower when just two years old.

TIME FOR SOWING

Sow preferably in spring, so as to have the longest growing period before the winter rest. Heat is advisable, though shelter will suffice in some cases. A proper propagating case is necessary, for instance a box, large enough to hold a number of individual seed pans or containers.

For warmth, one or two electric bulbs may be connected to the inside of the box, to keep the temperature at from 70 to 80 degrees. Glass should be placed over the top, with a supply of graded wedges to admit air as required. Failing electricity, an oil lamp will serve, but its proper position must be carefully studied. It cannot go inside the propagating case. A miniature hot water system for air conditioning will serve. Take some small galvanized piping, two short pieces, one closed top and bottom, and the other closed only at the bottom. Drill two large holes in the side of each, solder two longer pieces to serve as flow and return. When complete you have a letter H with two bars. The upright piece, closed both ends, will be the boiler, and an oil lamp under this will give the required heat, while the other upright, open at the top, will be for filling.

PREPARATION OF SOIL

The soil in which the seed is to be sown should consist of one part loam, one part clean, sharp sand, and one part leaf mould, with a little lime added. Mix together and then put it through a fine sieve. If this is well moistened, then heated for about 30 minutes or so, it will rid the soil of both weed seed and insect eggs.

If a number of varieties are to be sown, use small square pans or tins, sowing each variety separately, as some germinate quicker than others and square pans do not take up so much room as round ones. A useful size is 2 inches x 1½ inches by 2 inches deep, with a ½-inch hole for drainage. Place some small broken crocks in the bottom to one-third of the tin, then a little soil; press this down firmly, then add more soil to about a half-inch from the top; level off and plant the seed.

SOW RIGHT SIDE DOWN

We have all heard the old joke about seeds having failed to germinate because they were planted upside down, but with cactus seeds it is not a joke, as seed so planted may germinate, but the young plants will lie on the top of the soil and shrivel up because the fine root cannot reach the protection of the earth. Therefore it pays to take a little trouble when planting, especially if you are sowing rare varieties. With the aid of a magnifying glass, see that the scarred end of the seed is facing downwards. Large seed can be pressed into the soil, but fine seed should be only barely covered; otherwise they will never push their way through.

Cover the seeds with finely crushed brick (not dust), as it does not encourage green algae on the surface. Place over them a piece of glass that has been painted white on the upper side. Then, when they have been watered, they will be ready for the propagator.

METHOD OF WATERING

The pans must not be watered from the top. Place them in a zinc tray or trays with a hole drilled in one corner and stopped with a plug. It is better to sprinkle some fine gravel on the bottom of the tray, so that the pans will drain freely. Fill the tray to half an inch deep with water, and wait until the soil has become well soaked. Then pull out the plug and let the water drain away. Now place them in the propagator and watch for results.

Lift the glass on the pans each day and wipe off the moisture. If this is not done the young seedlings will damp off. If a little Chestnut compound is put into the water when first watering it will prevent the damping off of the seed after germinating.

When the young plants appear, lift the glass just a little by placing a small wedge under it. Increase this vent each day, gradually hardening off the small plants. Do not keep the seedlings in the case too long or they will become drawn

and weak. Young seedlings cannot stand strong sunlight, and if they cease to be a nice shiny green color and become brown, it is nearly always caused by keeping them in too strong a light, or lack of water. Transplanting may be carried out in about two or three months, but care must be taken not to bruise the tender plants.

MY TEN FAVORITE CACTI (OR SUCCULENTS) AND WHY

Watertown, Wisconsin,

In the November issue of the Cactus and Succulent Journal, I note on page 66 "My Ten Favorite Cacti and Why!"

Well, these favorites I have found rather hard to select when one has a fine collection of over 240 varieties.

Cephalocereus senilis. Venerable odd. Collection not complete without it.

Astrophytum myriostigma. Stone-like curiosity.

Cephalocereus palmerii. Stately, beautiful, blue, woolly.

Myrtillocactus tamaulipensis. Rare, finest blue, violet.

Cereus formosus monstrosus. Knobby, peculiar, attractive.

Echinocereus rigidissimus. Colorful, beautiful flowers.

Mammillaria habniana. Fine, rare, odd.

Mammillaria nivosa. One of the most beautiful Neomammillarias.

Ferocactus rectispinus. Rare, long spines, fine.

Melocactus intortus. Strange, attractive.

CLARENCE L. SCHMUTZLER, Wis.

Question: I have a collection but they never bloom. Can you tell me if it is the soil.

PAULINE A. WEIS, Ohio.

Answer: The lack of flowers on your cacti probably is due to one of the three following causes:

1. Type of plants. Some cacti do not flower until they have attained great age and full growth. If your collection includes a small "old man" cactus (*Cephalocereus senilis*) you need not expect it to bloom for twenty years, at least. Nevertheless, with its long silky hair, it is an attractive plant. Other plants bloom when quite young and when quite small. Some of the Mammillarias, for instance, bloom at three years of age and when but an inch in size.

2. Where the plants were obtained. We find it very hard to get field collected plants to flower, whereas the same kind of plants, grown from seed, flower frequently. Nursery men are realizing this and more of them are growing their plants from seed. Some mark them as such in their catalogue.

3. Soil condition. A recommended mixture is as follows: one-third good garden soil, one-third well rotted leaf-mold, and one-third sand. If the plants are from the deserts of the United States, a little lime may be added to this mixture, otherwise, it may be omitted. If pots are used, they should be of ample size so that the roots do not reach to the sides. In the spring, water the plants more freely. By early summer, water them twice a week; if in pots more often. The ground may be kept moist but never soggy. A plant in a four inch pot could be watered almost daily.

ERVIN STRONG.

QUESTIONS AND ANSWERS

Question: I have a plant under the name of *Gymnocalycium lafaldense.* A fellow collector purchased a plant that seems the same under the name of *Gymnocalycium bruchii.* Could you tell me the difference in the two plants? E. A.

Answer: This very interesting little plant was first described by Spegazzini in 1923 as *Frailea Bruchii,* and again as *Gymnocalycium lafaldense* by Vaupel in 1924. During his studies Curt Backeberg noted that there was but one species in question, but also found it could not be left in the genus under which it was first described; but was a *Gymnocalycium.* However, as it was given the specific name "Bruchii" prior to its description as a *Gymnocalycium* by Vaupel this name held priority. Hence the new combination *Gymnocalycium Bruchii* (Backeberg). This is a variable species. Flowers when exceptionally small and one can readily understand how it could have been mistaken for a *Frailea* by Spegazzini. The flowers are intensely fragrant and range in color from lavender to very light pink.

Question: I have difficulty in getting *Chamaecereus Silvestrii* to bloom. What is the remedy if any? W. R. H.

Answer: First it is necessary to realize that this well known species is a lover of full sun. A rest in the fall will enable it to set flower buds if it is so inclined. Our experience with this plant, as well as some others, has been that some stock will flower well while others will not. We have all noticed in years of drought, plants tend to produce a greater number of flowers and less foliage thus sacrificing appearance in an effort to reproduce their kind. Our suggestion would be, not to grow your plants too fast and give them plenty of sun.

Question: How does *Chamaecereus Silvestrii* cristate differ from *Chamaecereus crassicaulis?* Has this last species been described. R. B.

Answer: Chamaecereus Silvestrii var. *crassicaulis* cristate, is the correct name of this variety of *C. Silvestrii.* It originated as a sport off *Chamaecereus Silvestrii,* but has many characteristics which make it outstanding. The facts that each and every normal shoot eventually becomes crested or monstrose; it is very free-flowering, self fertile; flowers are much deeper in color than the type. The greater part of the flowers are also very double, some have no stamens. We know of no formal description of the plant but an account of its origin is given by Backeberg on page 73 of the June, 1934, *English Cactus Journal.*

Question: I have a Lambs Tail grafted to Queen of the Night. A sprout has started on the stock. As I do not have this plant would it hurt to let this grow? C. K.

Answer: Your Lambs Tail (*Wilcoxia Schmollii*) and Queen of the Night (*Selenicereus Macdonaldiae*) should be grown as individual plants. If the sprout is of sufficient size already we would suggest you take it off at once and root it. If not, we believe it would be wise to remove it anyway as it is very detrimental to any grafted plant to allow the stock to make individual growth and it will eventually cause the death of the scion.

MRS. E. C. HUMMEL.

HUMMEL'S EXOTIC GARDENS
4848 IMPERIAL HIGHWAY INGLEWOOD, CALIFORNIA
IMPORTED PLANTS:

Cephalocereus senilis, 4 inches	$ .75
Echinocactus corniger (broad spines)	1.00
Echinocactus ingens (purple marked)	1.50
Echinocereus Delaetii	.75
Mamillaria Kunzeana	.75
Mamillaria Dietrichae	.75
Mamillaria Waltonii	.75
Mamillaria Martinezii	.75
Mamillaria depressa (similar to *M. camptotricha*)	.35
A rare and beautiful plant, *Crassula orbicularis* variegata	.50

Seed of many of the rarer Mamillarias.. .10 per pod
Write us concerning your wishes in show plants of unusual beauty. Imports of unusual exotic charm. Rare crests our specialty.

Owner of the Export permit of the Mexican Government, offers Mexican cacti, especially beautiful show plants, at moderate prices.
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Eight inch *Dudleya Brittonii* from Mexico.
White, powdery, beautiful rosette.
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New 1938 Price List of hundreds of kinds now ready. It's free for the asking.
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MY TEN FAVORITE CACTI AND WHY

Echinocactus grusonii: because it is the epitome of the desert, its heart of gold the glowing sun, its golden spines the rays.

Cephalocereus senilis: for its whiteness, its dense flowing spines or hair, which have nothing to do with old age.

Mammillaria hahniana: for its white hair and its wreath of vivid blossoms nestled in it, its silken look and perfect form.

Opuntia tunicata, the white spined variety: for its perfect form and gleaming armament.

Epiphyllum argus: for its large, silver-sheened pink petals and copper heart.

Notocactus haselbergii: for its white spined background to a long lasting cluster of orange-red flowers, a perfect plant.

Mammillaria plumosa, grafted: for its ball of live down, stolen I know, from the breast of a baby swan.

Ferocactus coloratus: for its deep warm crimson spines.

Oreocereus trollii: for its wooliness complemented by vividly vicious spines.

Opuntia brasiliensis: for its green greeness, its beeswax buds and crystalline flowers.

NEFF K. BAKKERS.

MINUTES OF THE MEETING OF THE NOMENCLATURE COMMITTEE

Mr. Hertrich's Office—May 1, 1938—2:30 p. m.

Members Present: Baxter, Craig, Gates, Hertrich, Marshall, Poindexter.

Dr. Craig presented a revised description of *Mammillaria Inaeae*. This was accepted by the Committee, though considerable discussion was held on the exact meaning of two or three of the technical terms used.

Mr. Gates brought specimens of *Wilcoxia Poselgeri* and the *Wilcoxia* for which the name *"tamualipensis"* has been proposed. Both plants were in bud. The consensus of opinion appeared to be that there was sufficient difference to warrant describing the latter as a distinct species.

Gates also brought a plant of *Echinocereus Abbeae*. Most members present considered this to be essentially a mere variety of *E. Fendleri*.

Poindexter brought samples of an *Escobaria* to ask the opinion of the Committee as to its distinctness. It was suggested that he study the literature and make a careful description of this plant for comparison with already-named species.

Marshall presented an herbarium sheet of a *Ferocactus*. It was the opinion of the Committee that this should be considered a straight-spined variety of *F. Covillei* and not a distinct species.

THE CACTUS AND ITS HOME—By Forrest Shreve. Written by a member of the society who is in charge of The Desert Laboratory of the Carnegie Institution. Describes what a cactus is, how it is constructed, names, tribes, families, cultivation and distribution. Based on scientific investigation, a great many questions are answered. 45 interesting illustrations, $1.50.